

OUR BOOK SHELF

La Théorie Hugodécimale; ou, La Base scientifique et définitive de l'Arithmologistique universelle. Par le Cte. Léopold Hugo. (Paris, 1877.)

M. HUGO continues to pour forth his pamphlets with their polyglot inscriptions. On this we have "Urbi et orbi. Hic tandem triumphaliter fulget REGULARITAS!" "La pan-imaginarité Hugomathique: CONTINUITAS! CONTINUITAS! TRICONTINUITAS!" We have, in a former notice, glanced at the "Géométrie Hugomoidale." The object of the present pamphlet is "à vulgariser et à répandre dans les diverses régions civilisées de l'ancien et du nouveau monde, Tou-Kieou, Tchong-Kouo, Fou-Song, &c., &c., cette haute doctrine philosophique, qui, dans sa concision, mérite assurément une place aux premiers rangs de la Philosophie Scientifique. Mais, dans mon isolement de simple philosophe, force me sera d'employer les combinaisons les plus étranges, et de frapper l'attention du lecteur par la singularité même de mon exposition."

One or two extracts must suffice to show how our author proceeds:—

"Évocation Chino-Tibétaine. Nous, suprême Grand Lama, voulons reproduire pour tous l'opération magique hugodécimale.

"Salut! Salut!"

"En notre Divan sacré de Hlassa-Potala, parfumé de nuages d'encens, nous étendons la main gauche en désignant et déterminant un point dans l'espace ambiant.

"Salut! Salut!"

"De notre main droite étendons le sceptre, pan-scientifique et sacré, sur ce point de l'espace. Salut! salut!"

"Apparaît une figure enveloppant le point considéré: figure offrant quatre faces pareilles.

"O Saints Lamas, placez pieusement sur notre tapis drécielux, le premier solide que l'espace régulier vient d'enfanter.

"SSÉ—MIÉ (with figure of tetrahedron).

"Salut! Salut!"

And so on through the ten solids, of which we gave an account in our earlier notice.

The third chapter is taken up with the "Géométrie Pan-imaginaire" and the "Arithmétique Pan-imaginaire," communications made to the Société Mathématique de France, and which we have previously described.

Sufficient notice has been taken of this *brochure* of thirty-two pages, with many figures.

To some of our readers our remarks will serve as a beacon; those who like to secure oddities may perhaps be induced to add this to their stock. Our principal reason for yet noticing another effusion of our author is that we have at last got a notice of him from one of his own countrymen, who calls him "Sans contredit, dans le domaine des sciences, l'un des plus actifs novateurs de l'époque" (M. Géro, *Nouvelles Annales de Mathématiques*, Juin, 1877, pp. 278-280). Like ourselves, M. Géro confines himself to *extracts*. In his *avertissement* M. Hugo bursts forth with "Écrasons les pan-routiniers! qu'ils tremblent, blottis dans leur petite science, devant l'ouragan hugomathique!" Upon this the French reviewer well remarks:—"Mon avis est qu'il ne faut écraser personne, et que les philosophes réformateurs doivent se garder de prendre l'exaltation des idées pour le sublime des idées. Ce n'est pas sans danger qu'on se lance dans la voie des réformes avec un enthousiasme qui, dans sa marche ascendante, pourrait s'élever jusqu'au délire." The writings of such a visionary perhaps hardly merit a notice; we are disposed henceforth to let him go his own way, trusting that time will clear up many, if not all, of his crotchets.

Mechanik der Bewegungen der Insektenfressenden Pflanzen. Von A. Batalin.

WE have here a record, reprinted from the pages of

Flora, of a very careful series of experiments on the cause of the "spontaneous" movements of the glands of *Drosera* and other similar organs when irritated say by contact with a fly. Comparing the well-known explanation given by De Vries and others of the movements of tendrils—that contact causes an acceleration of growth in the organ, not on the side touched, but the opposite side, and consequently a concave curving round the touching object—Batalin offers the same explanation of the curvature of the tentacles of *Drosera* when irritated by a fly, viz., an acceleration of growth on the side opposite to the one touched, and in consequence a concave curvature. While admitting the care with which Batalin has performed his experiments, we fail to see how his explanation accounts for some of the well-known phenomena of these singular plants; as, for instance, the fact vouched for by several observers, that glands which are not themselves irritated exhibit the same concave curvature as those that are, and especially those so circumstantially described by Darwin as to the extreme sensitiveness of the tentacles of *Drosera* to the most dilute ammoniacal solutions, while they are quite insensitive to pure water. The "spontaneous" curvature Batalin believes to be a function of growth, and to be displayed in proportion to the faculty of growth possessed by the organ.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Relations between Sun and Earth

PERMIT me to correct a slight misapprehension in Mr. Archibald's very interesting article on the Indian rainfall in *NATURE*, vol. xvi. p. 340. Mr. Archibald speaks as if my discovery regarding the coincidence of the increase and decrease of the Madras rainfall with the cycle of sun-spots applied to "the whole of Southern India." Now, on the contrary, I guarded against such a generalisation by a sentence expressly inserted for that purpose. "I merely record," I said at p. 9 of my paper, "the statistical evidence collected at a point on the globe's surface, at which, from its tropical situation and physical conditions, such a factor would exercise an influence in a well-marked manner." I insisted on this, as the local influences at work on the rainfall suffice in several parts of Southern India, to disguise the operation of any general law. Mr. Archibald may, however, have been led into this misapprehension from an ambiguous expression in the first sheets of my paper, which were hastily struck off as I was leaving India, with a view to placing the Government in possession of the facts before my departure. In these sheets I find the words "Southern India" used once or twice as a periphrasis to avoid the too frequent repetition of the word Madras. This ambiguity was removed from the paper as finally printed. I need hardly add that the words "the whole of Southern India" nowhere occurred. I hope shortly to show in a more carefully elaborated work, the limitations under which the results arrived at in my former paper can be safely generalised. Meanwhile Mr. Archibald's interesting communications both in *NATURE*, and in the *Calcutta Englishman* are worthy of careful study.

WM. HUNTER

LANARKSHIRE, August 27

The Telephone

In the present agitation concerning speaking or telephonic telegraphs, the following extract from M. Le Comte du Moncel's "Exposé des Applications de l'Electricité," edition of the year 1857, vol. iii. p. 110, may be interesting as pointing out how nearly the idea has been forestalled.

"The Electric Transmission of Speech."

"I did not wish to bring forward in the chapter of the electric telegraph a fantastic conception of a certain M. Ch. B.—, who

believes that it will be possible to transmit speech electrically, because it might have been asked why I had classed among so many remarkable inventions an idea that, presented by the author as it is, is not more than a dream. However, to be faithful to the rôle that I have imposed upon myself of speaking of all the applications of electricity that have become known to me, I wish to quote here the information which the author has published on this subject.

"After the marvellous telegraphs which are able to reproduce at a distance writing of this or that individual, and designs more or less complicated, it seemed impossible, said M. B—, to advance further in the regions of the marvellous. Nevertheless, essaying to do something more, I asked, for example, if speech itself would not be capable of transmission by electricity; in a word, if one would not be able to speak at Vienna and be heard at Paris. The thing is practicable. This is how: Sounds, it is known, are formed by vibrations and carried to the ear by these same vibrations, which are reproduced by the intermediate media.

"But the intensity of these vibrations diminishes very rapidly with the distance, from which it follows, even in the employment of speaking trumpets, tubes, and of acoustical horns, the limits which cannot be surpassed are very restricted. *Imagine that one speaks near a mobile plate, flexible enough not to lose any of the vibrations produced by the voice, that this plate establishes and interrupts successively the communication with a battery. You would be able to have at a distance another plate which would execute at the same time the same vibrations.*

"It is true that the intensity of the sounds produced would be variable at the point of departure where the plate is vibrated by the voice, and constant at the point of arrival where it is vibrated by electricity. But it is demonstrable that this would not alter the sounds.

"It is evident from the first that the sounds would reproduce themselves with the same pitch in the scale. The actual condition of acoustical science does not permit of saying, *à priori*, whether the same conditions would hold good for all syllables articulated by the human voice. The manner in which these syllables are produced is not yet sufficiently well known.

"In any case it is impossible to demonstrate, in the present state of science, that the electric transmission of sounds is impossible. Every probability, on the contrary, is for the possibility. An electric battery, two vibrating plates, and a metallic wire will suffice.

"It is certain that, at a time more or less distant, speech will be transmitted to a distance by electricity. I have commenced some experiments to that effect, they are delicate and require time and patience. But the approximations obtained point towards a favourable result."

PAGET HIGGS

Museums

THE following suggestions may possibly prove useful to directors of museums, and especially of provincial museums. Most of the plans recommended have been tried with success.

It is very desirable that in all collections intended for public instruction manuscript labels should be abolished. The advantages of perfect legibility, uniform style, and an occasional change of cards far outweigh the cost of letter-press. A convenient hand-press costs about 3*l.*; several founts of type in quantity sufficient for museum purposes, may be had for 5*l.* An assistant can be taught printing in a few days; I have at times engaged a printer's apprentice, paying sevenpence an hour for his services.

The proper display of dissected preparations put up in spirit has long been a serious trouble. Most dissections of small size can be pinned out on wax. Young's Paraffin Light and Mineral Oil Company, of West Calder, have lately prepared, at my request, smooth paraffin slabs, coloured deep blue, and cut to 12 in. × 6 in. These can be had at a shilling a pound. Cylindrical glass vessels are objectionable, not only on account of distortion, but because they render it difficult to demonstrate details of structure. Rectangular trays with movable plate-glass lids are far more convenient. These may be made of ebonite for the smaller sizes, and of wood, lined with gutta-percha where the cost of ebonite becomes important. I hope before long to get a useful tray cast in glass. The edges must be accurately ground,

and the cover secured by light brass clamps. In the bottom of the tray the wax tablet can be securely fixed. It is useless to cement the lid to the tray. Hardly any cement will stand prolonged exposure to dilute spirit, and it is necessary to readjust or clear the dissection from time to time.

Fossils are usually kept loose; in the larger collections they are mounted on tablets of wood or glass covered with paper. The first method is untidy and often causes loss of labels; wooden tablets are costly, difficult to cut of quite uniform size, and liable to warp; glass is also difficult to cut true, and wastes much time in covering with paper. Ten years ago I procured a supply of pasteboard tablets one-tenth of an inch thick from a pattern-card maker and have used them exclusively since. They are cheap (ninepence to a shilling a pound), can be cut perfectly true by machinery, do not warp, and may be had of any colour. Fossils glued to pasteboard with coaguline are perfectly fast; we range them in wall-cases upon shelves sloped to forty-five degrees, and never meet with accidents.

In our geological wall-cases I have introduced above the level of the eye a range of boards, nearly upright, but sloping slightly forwards at the top, upon which maps, sections, photographs, and descriptive notices can be pinned. In a palæontological collection this space is useful for drawings of restored animals.

It is much to be desired that the dealers would procure a better choice of zoological models in glass and porcelain. Reuss' foraminifera are still useful, though antiquated; Blaschka, of Dresden, keeps no stock, though he has supplied many of our museums with useful models in glass made from drawings. We want artistic and accurate coloured models of mollusca, hydrozoa, &c., far beyond the present supply.

Stuffed animals, especially stuffed mammalia, are the plague of a curator. I do not refer especially to their liability to moths (insects of all kinds can be kept down by placing saucers of carbolic acid in the cases) but to their grotesque deformity, their unnatural attitudes, and their proneness to contract in unexpected places. A model in plaster or clay, strengthened internally by wires would last for ever, and the skin would stretch over it readily enough when moist. Real skill in modelling is required here, and we have not yet been able to command it. The Schools of Art may in time help us over the difficulty. A well-modelled animal can never be very cheap, but if increased costliness should render set-up quadrupeds comparatively scarce, zoology need not suffer on that account.

Public museums should contain far more than they now do the elementary explanations necessary for the right understanding of the objects exhibited. A text-book illustrated by specimens instead of wood-cuts should be our aim, at least where the wants of the public are more concerned than the wants of special students. I should propose to relegate nine-tenths of our existing collections to cabinets were it not that things out of sight in cabinets are so liable to suffer from neglect. At present we aim at too much, introduce too many departments into a small museum, show too many obscure and uninteresting objects, and spoil everything by over-crowding.

Personally, I do not hold that local collections should be everything in a provincial museum. We have to consider the wants of residents as well as of passing strangers, and what the residents interested in natural history require is a general collection of typical specimens which will teach them something of the elements of their science. It is very easy to make imposing collections of land and fresh-water shells, butterflies, and so forth, which a naturalist passing that way praises because they contain here and there a choice thing, but which either teaches nothing to the uneducated visitor, or else teaches him the very undesirable lesson that the best thing he can do is to make a similar collection for himself. We have had more than enough of unintelligent collecting and unintelligent records of occurrence. Our provincial museums should tell the public that to know something of the structure of animals and plants is better than to know many species.

L. C. MIALL

Leeds, August 17

THE great difficulty, as it seems to me, in promoting and maintaining the efficiency of our local museums lies in providing them with suitable curators; and in this connection an idea which occurred to me last year may prove not unserviceable. I have seen a large number of our provincial museums, and in many of them have found really extensive and valuable collections of natural objects which only require to be rightly named